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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,498	11/19/2003	Kenichi Mori	245144US2SRD DIV	4502

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EXAMINER	
NGUYEN, HAU H	
ART UNIT	**PAPER NUMBER**
2676	

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/715,498	MORI ET AL.	
	Examiner	Art Unit	
	Hau H Nguyen	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) *1-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/19/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 26-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Oka et al. (U.S. Patent No. 6,257,384).

Referring to claims 26-27, 33-34, 40-41, 48, and 49, Oka et al. teach a drawing device wherein, as shown in Fig. 1, comprising a CPU 11 (a shape divider), which includes a GTE (geometry transfer engine) 17 for performing formulating a drawing command for defining a three-dimensional model as combination of basic unit figures (polygons) such as triangles or quadrangles for drawing a three-dimensional picture, and sending out the drawing command associated with each polygon as command packet and route the resulting command packet to the GPU (graphics processing unit) 15 (col. 5, lines 40-55). Oka et al. further teach the GTE 17 has a parallel computing mechanism for carrying out plural computing processing operations in parallel and is responsive to a request for computing processing from the CPU 11 in order to carry out fast processing operations, such as coordinate transformation, light source calculations, matrix or vector operations (plurality of shape dividers) (col. 4, lines 51-56). With reference to Figs. 2 and 3, Oka et al. teach the GPU 15 includes: a pre-processor 32 generates various data such as

apex point coordinate information for the respective polygons required by the drawing engine 33, address information such as texture or MIP map texture, or control information, such as pixel interleaving; a drawing engine 33 comprising: N polygon engines 33A1...33AN sequentially generate polygons in accordance with the drawing command on the basis of the polygon data pre-processed by the pre-processor 32 for performing parallel shading processing from one polygon to another. (Thus, the pre-processor 32 and the polygon engines 33A1...33AN constitute as a plurality of vertex processors that executes arithmetic operations); N texture engines 33B1...33BN for performing texture mapping or MIP Mapping in parallel, based on the texture data supplied from the texture cache 33F via color lookup table (CLUT) cache 33G, on each of the polygons generated by the polygon engines 33A1... 33AN. The M pixel engines 33D1, 33D2, . . . , 33DM perform various picture processing operations, such as Z-buffer processing or anti-aliasing processing, in parallel, for generating M pixel data. The M pixel data, generated by the M pixel engines 33D1, 33D2, . . . , 33DM, are written in the frame buffer 18 via second bus switcher 33E (computing by the texture engines and pixels engines picture data and storing the results in the frame memory 18) (col. 6, lines 4-58). With reference again to Fig. 3, Oka et al. also teach a frame memory readout route configured to read out at least data for texture mapping from the frame buffer 18 and transfers data read out from the frame buffer to the vertex processor, and a texture cache for temporarily storing data read out from the texture area of the frame buffer (col. 6, lines 36-47).

Referring to claims 28-29, 35-36, 42-43, as cited above, Oka et al. teach the vertex processor includes a plurality of processing elements (polygon engines

33A1..33AN) performing parallel shading processing, and the processing each row corresponding the numbers of rows of the polygons is illustrated in Figs. 7-21.

As for claims 30, 37, and 44, as shown in Fig. 2, Oka et al. teach data transfer routes are provided to transfer data from the pre-processor to the plurality of processing elements (polygons engines).

Referring to claims 31, 38, and 45, as cited above, Oka et al. teach the N texture engines 33B1, 33B2, . . . , 33BN perform texture mapping or MIP Mapping in parallel, based on the texture data supplied from the texture cache 33F via color lookup table (CLUT) cache 33G, on each of the polygons (consecutive triangle strip) generated by the polygon engines 33A1, 33A2, . . . , 33AN.

In regard to claims 32, 39, and 47, Oka et al. teach the polygon data, processed with texture mapping or MIP Mapping by the N texture engines 33B1, 33B2, . . . , 33BN, are transferred via first bus switcher 33C to M pixel engines 33D1, 33D2, . . . , 33DM (col. 6, lines 47-55) (mapping in units of vertexes and pixels together).

As for claim 46, Oka et al. teach the CPU 11 has a shared program memory 12 (col. 4, lines 42-43).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

Grossman (U.S. Patent No. 5,307,450) teaches a method for slicing polygons into quadrilaterals and triangles whose vertices are arranged between two adjacent Z planes.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 703-305-4104. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 703-308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D. C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

H. Nguyen

02/01/2005

Matthew C. Bella

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